

**D. Horizontal stabilizer installation**

The process of horizontal stabilizer installation is the opposite. It is recommended that the horizontal stabilizer and the automatic connection rocker levers of the elevator trim tab control on the vertical stabilizer, and on the horizontal stabilizer, are approximately parallel.

**E. Horizontal stabilizer removal**

Remove the safety wire from the front pin of the horizontal stabilizers (in front of the leading edge of the vertical stabilizer on its top). Rotate the pin handle  $180^{\circ}$  and pull out the pin. Elevate the horizontal stabilizer leading edge about  $30^{\circ}$  up, slip out the horizontal stabilizers from pins by pulling forward. It is recommended that the elevator to be in the neutral position during removal. Put the horizontal stabilizers on the special handling equipment support.

**4.3 PREFLIGHT INSPECTION**

The pilot must check the sailplane for proper condition in accordance with the checklist walkaround inspection (before getting into the sailplane). It is recommended to perform the inspection as show in Fig. 4-1.

Sequence of the walkaround inspection

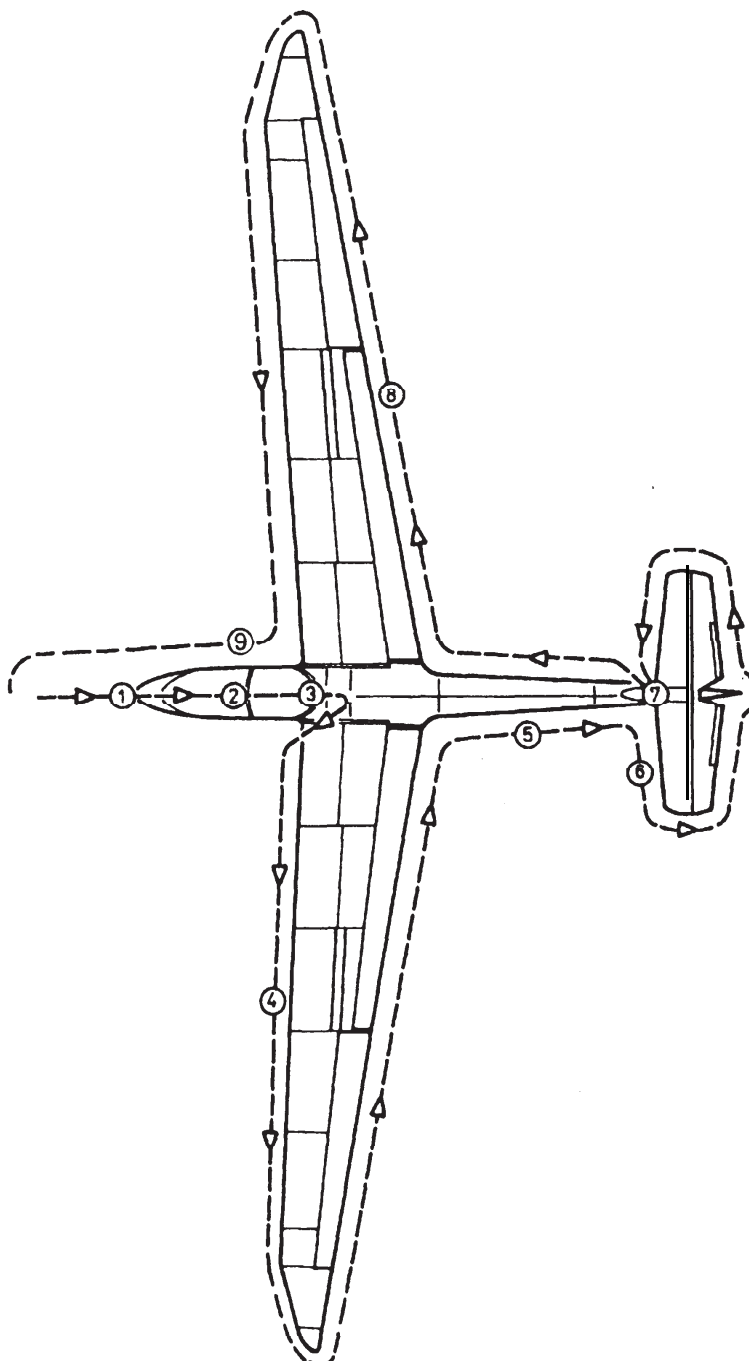


FIG. 4 · 1

( Cont. )



**4.3.1 WALKAROUND INSPECTION CHECKLIST**

| Item No. | Subject                               | Check/activity                                  |
|----------|---------------------------------------|---|
| 1        | <u>Front fuselage section</u>         |   |
|          | Fuselage skin                         | no damage                                       |
|          | Left & right static probes            | ports clear                                     |
|          | Cockpit canopy surface                | no damage or dirt                               |
|          | Nose pitot tube                       | no damage or clogging                           |
| 2        | <u>Cockpit</u>                        |   |
|          | Instruments                           | no damage                                       |
|          | Altimeters                            | correct setting QFE (QNH)                       |
|          | Radio station (if installed)          | proper operation                                |
|          | Front ventilation                     | for season                                      |
|          | Safety belts                          | no damage                                       |
| 3        | <u>Landing gear</u>                   |   |
|          | Tire                                  | no damage, correct inflation                    |
| 4        | <u>Left wing</u>                      |   |
|          | Wing skin including leading edge      | no damage                                       |
|          | Wing-tip fairing (wing tip extension) | no damage or loose                              |
|          | Aileron skin                          | no damage to fabric cover or trailing edge      |
|          | Ailerons                              | free movement                                   |
|          | Airbrake locking hinges               | locking no damage of hinges or control tie rods |

( Cont. )



| Item No. | Subject                       | Check/activity  |
|----------|-------------------------------|---|
| 5        | <u>Rear fuselage section</u>  |   |
|          | Inspection ports              | cables, fasteners snug  |
|          | Fuselage skin                 | no damage   |
| 6        | <u>Empennage</u>              |   |
|          | Vertical stabilizer           | no damage   |
|          | Compensator pickup            | in place, plug removed  |
|          | Elevator                      | free movement   |
|          | Horizontal stabilizers        | condition of locking wire on the front pin of the horizontal stabilizer (in front of the leading edge of the top part of the vertical stabilizer) |
|          | Rudder                        | free movement   |
| 7        | <u>Tail landing gear</u>      |   |
|          | Landing gear attachment       | no damage of attachment   |
| 8        | <u>Right wing</u>             | see Item 4 - left wing  |
| 9        | <u>Front fuselage section</u> |   |
|          | Pins for canopy opening       | proper position against hinges  |



#### **4.3.2 BEFORE TAKE-OFF CHECKLIST**

##### Front seat

Before entering the front cockpit, adjust the front seat back-rest to a position allowing control of the sailplane when fully strapped in.

##### Rudder control

The position of the rudder pedals should be adjusted with the pilot fully strapped in so that both left and right pedals can be moved comfortably to the full extent of their travel. The position of the rudder pedals in the front cockpit can be adjusted by means of the crank. In the rear cockpit, adjustment to one of three possible positions may be obtained by removing the locking pin.

Note: This can be done only before the flight.

##### Control column

Check for full and free movement of the control column in all directions; move it to the left, to the right, forwards and backwards.

##### Instruments

Set the altimeters to zero or as desired by the baro-set knob. Check the other instruments and see that vertical speed indicators and airspeed indicators read zero.

##### Cockpit canopy

Close and lock.

##### Safety belts

Fasten the safety belts.

##### **Trim**

Set the elevator trim tab to the neutral position marked "0" .

##### Air brakes

Check for easy movement of air brake control. Confirm air brakes retracted for take off.

##### Tow rope release

Check the tow rope release mechanism for proper functioning.



#### **4.4 NORMAL OPERATIONS AND RECOMMENDED SPEEDS**

##### **4.4.1 TAKE-OFF AND CLIMB**

###### **1. Aerotow launching**

The take-off technique by aerotow is entirely conventional. The elevator and rudder efficiency is high enough during the initial stages of the take-off run, that it is easy to prevent directional or roll oscillations by use of rudder or ailerons, Set the elevator trim tab control to a position between "zero" and "nose heavy" and hold the control stick in the neutral position on the landing gear and at liftoff speed pull the control stick gently to unstick the sailplane. Hold the sailplane in horizontal flight at a height of 3 ft (1 m ) until the towing airplane starts to climb. The take-off with cross wind is different from the normal take-off. It is necessary to bank the wing into the wind ( in proportion to the wind speed) and to unstick the sailplane at a higher speed. The tow rope should be attached to the front hook only.

Note: Before take-off close the ventilation in order that dust and impurities do not get into the cockpit. The ventilation can be opened during at climb.

###### **2. Winch-launching**

**WARNING: USE EITHER SIDE HOOKS OR LOWER HOOK  
(DEPENDING ON WHICH HOOK IS INSTALLED)**

The winch launching is entirely conventional. Set the elevator trim tab control to the neutral position. The recommended speed for winch launching is 43 · 54 KIAS. Do not retract the landing gear when performing the traffic pattern.

###### **3. Aerotow**

###### **a) Climb**

Retract and lock the landing gear (by pulling the handle in your direction) when above a minimum safe height of 66 ft and the minimum speed of 54 KIAS is reached. Trim the sailplane for the climb speed. The sailplane angle of attack is fairly high when the climb speed is low and the view from cockpit is reduced considerably. Therefore it is recommended that the towing aircraft to keep a climbing speed of 54 · 70 KIAS .

( Cont. )



The pilot should avoid overcontrolling.

Principles of aerotow are the same as for other sailplanes.

b) Level flight

The maximum speed for aerotow is 81 KIAS. It is necessary to trim the sailplane to reduce control forces and to decrease pilot fatigue during longer flights on tow. It is necessary to realize that control sensitivity increases with flight speed.

c) Descending

A satisfactory rate of descent 390 - 590 ft/min can be obtained when the towing aircraft maintains an airspeed at least of 54 KIAS .

#### 4.4.2 FLIGHT

##### 1 .Turns and circling

The sailplane is very manoeuvrable and controllable and its behaviour is very good in turns with angles bank up to  $60^{\circ}$ .

##### 2.Side slipping

The piloting technique of the side slipping is entirely conventional. The angle of bank of the sailplane should be between  $10^{\circ}$  and  $20^{\circ}$ . The side slip is not very effective mean of losing height in this sailplane. As, the rate of descent may be effectively increased by the use of the air brakes. If a constant airspeed is to be maintained during a side slip, the angle of pitch must be constant. The air speed indicator is unreliable during slip maneuvers.

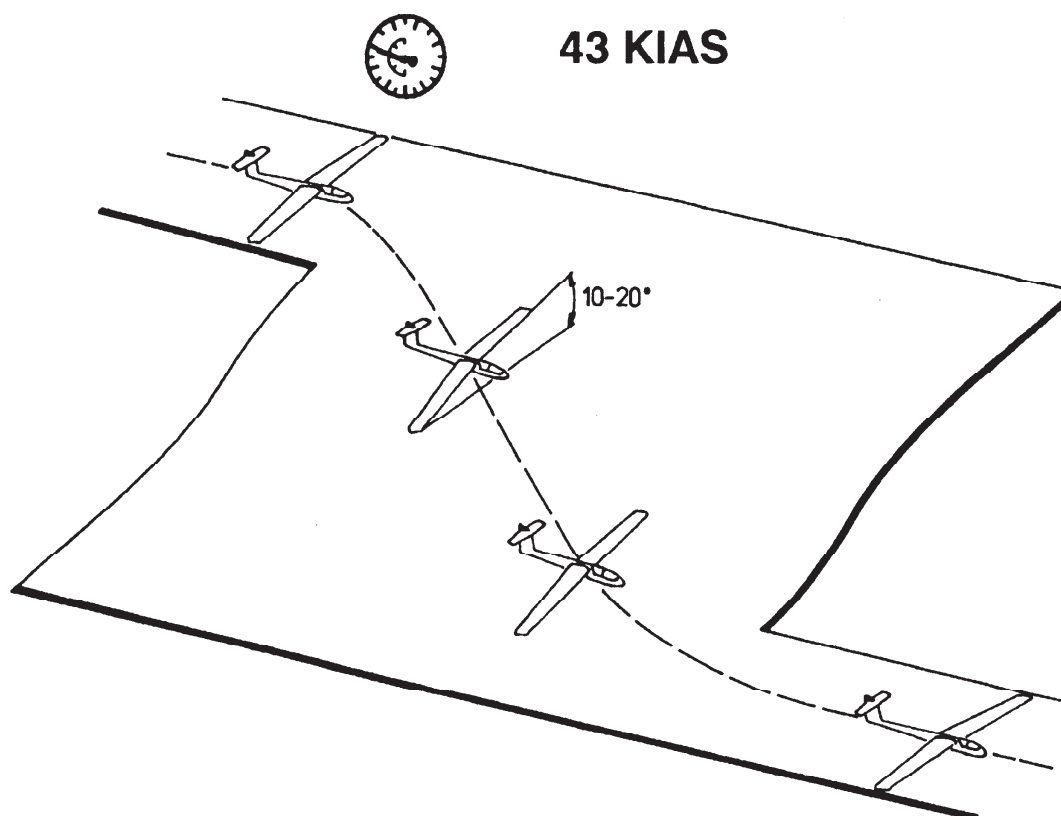


FIG. 4 - 2





### 3. Stalls

Slow and continuous pulling aft on the control stick causes the sailplane to stall. Ailerons and rudder should be used to control bank, if any. Pre-stall warning starts (at the speed of about 5% higher than the stalling speed), in the form of buffeting of the rudder pedals and of all front fuselage section. When stalled, the sailplane settles with a gentle pitching. Move the control stick forward and start the stall recovery.

**CAUTION: Before stalling and spinning the following procedures must be done:**

|                       |  |
|-----------------------|--|
| <b>Trim:</b>          | <b>neutral</b>                                     |
| <b>Air brakes:</b>    | <b>retracted and secured</b>                       |
| <b>Cockpit canopy</b> | <b>locked and secured</b>                          |
| <b>Ventilation</b>    | <b>shut</b>  |
| <b>Rudder pedals:</b> | <b>properly adjusted to allow full deflections</b> |
| <b>Safety belts:</b>  | <b>fastened and tight</b>                          |
| <b>Loose objects:</b> | <b>removed or secured</b>                          |

### 4. High Altitude Flight

Operation above 13,780 feet has not been demonstrated by the manufacturer. A sailplane placard provides calculated maximum ( VNE ) airspeeds above a pressure altitude of 13,780 feet for information only. High altitude flight should be conducted in accordance with any applicable operating rules.



#### **4.4.3 APPROACH**

The following approach speeds are recommended.

| Descent | Air brakes | Approach speeds |
|---------|------------|-----------------|
| Normal  | retracted  | 41-46 KIAS      |
|         | extended   | 43-51 KIAS      |
| Steeper | extended   | 51-60 KIAS      |

Anticipate mild sailplane ballooning when using higher approach speeds.

#### **4.4.4 LANDING**

Landing on the airport

The landing manoeuvre is entirely conventional. Use small elevator inputs at the flare. The sailplane should touch down with the landing gear first and then with the tail wheel if landed correctly (to reduce shock to the tail wheel on ground contact). Do not flare prematurely in order to prevent the sailplane from dropping from a higher height.

Off-field landing

It is recommended to land with the landing gear retracted if landing on a soft ground.

Note: In this case extend the wheel before the next flight.

Post flight

The following operations must be recorded in the sailplane log book as they occur:

- (1) Flight time with wing tip extensions installed.
- (2) Number of winch and aerotow launches by type.
- (3) Flight time during acrobatic maneuvers.



#### **4.4.5 USE OF AIR BRAKES**

It is recommended to use the air brakes in following cases :

1. To reduce landing especially roll on rough ground.
2. To increase accuracy of the landing manoeuvre.

Note: In case of using air brakes during landing, it is necessary to maintain an approach speed of about 5 kts higher, because the stall speed with fully opened air brakes is about 3-4 kts higher.

3. To avoid exceeding the never exceed speed ( $v_{NE}$ ) during unusual attitude recoveries (for example during aerobatics).

It is recommended to use the air brakes in any case when the sailplane starts to increase the speed and the pilot is uncertain of his orientation or how to manage the situation. Configuration with "air brakes extended" will ensure that  $v_{NE}$  is not exceeded. Use of air brakes will enhance the safety and makes handling easier because the extended air brakes tend to stabilize the sailplane.

The control lever should be held firmly when operating the air brakes to ensure smooth deployment and retraction.



#### 4.4.6 **BASIC AEROBATICS**

The L 23 SUPER-BLANIK sailplane is able to perform the listed approved aerobatic manoeuvres. The rate of acceleration of this sailplane is high, so great care must be taken not to exceed limitations given in Sections 2.2, 2.6 and 2.7.

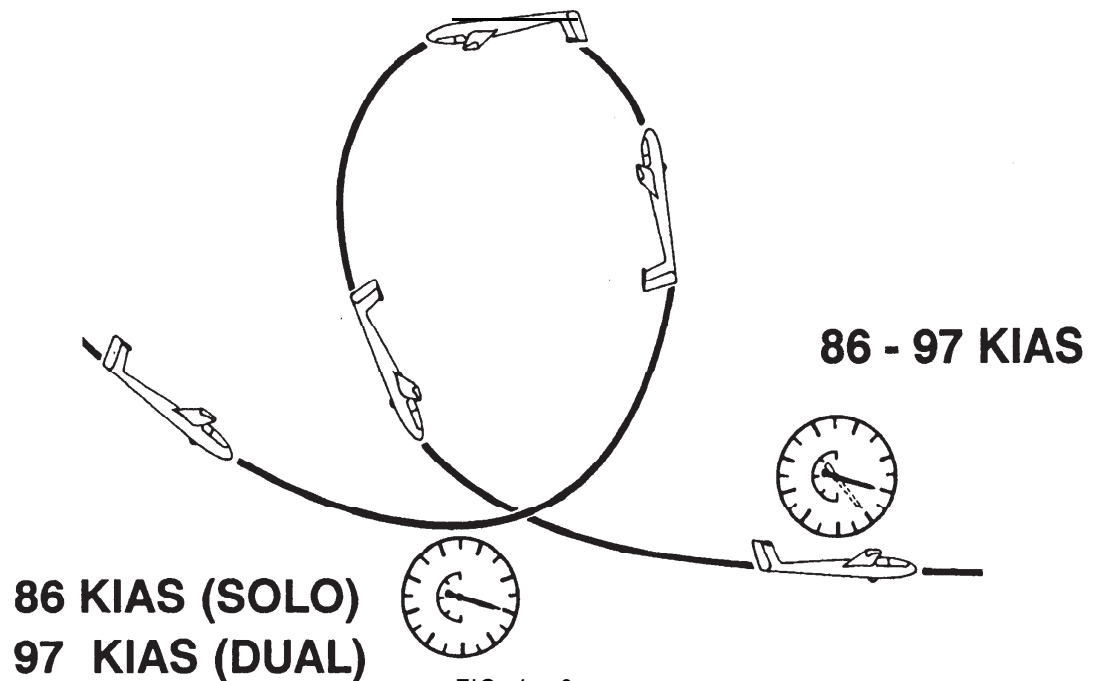
Instruction guidelines for performing approved acrobatic manoeuvres are given on pages 13 to 19 of this Section.

**WARNING: ONLY MANOEUVRES WITH POSITIVE G LOAD FACTORS ARE APPROVED.**

( Cont. )

## 1. Loop

Enter a moderate dive with slight forward movement of the control stick to gain a speed of 86 KIAS when flying solo or 97 KIAS when flying dual. Raise the nose of the sailplane by slight backward movement of the control stick, taking care not to apply excessive "g" forces, and maintain this rate of backward stick movement throughout the first half of the loop, but do not use more than about 60 % of the control stick full deflection. The load factor must drop in the inverted position. After passing the inverted position the speed will increase and the control stick must be eased forward gradually until the sailplane is flying level again. Before and during this manoeuvre rudder should be used to prevent yaw and ailerons used to keep the wings level. Maintain precise directional control for proper completion.



( Cont. )

## 2. Stall turn

This manoeuvre should be begun at the speed of 92 KIAS when flying solo or 97 KIAS when flying dual. Pull the control stick gently backward to bring the nose to a position of about 60' to 70' above the horizon. Ease the control stick forward slightly to maintain this attitude. As the speed falls to 70 - 76 KIAS, start to apply rudder slowly in the required direction of turn. As the force on the rudder decreases, gradually apply full rudder.

Full deflection of the rudder should be reached when the sailplane heads about 45' in the direction of turn. The ailerons should be used against the direction of turn as necessary to prevent the sailplane rolling to the inverted position. As the nose approaches the reciprocal heading, neutralize the rudder, keep the wings level by use of the ailerons, and ease out of the resulting dive, taking care not to apply excessive "g".

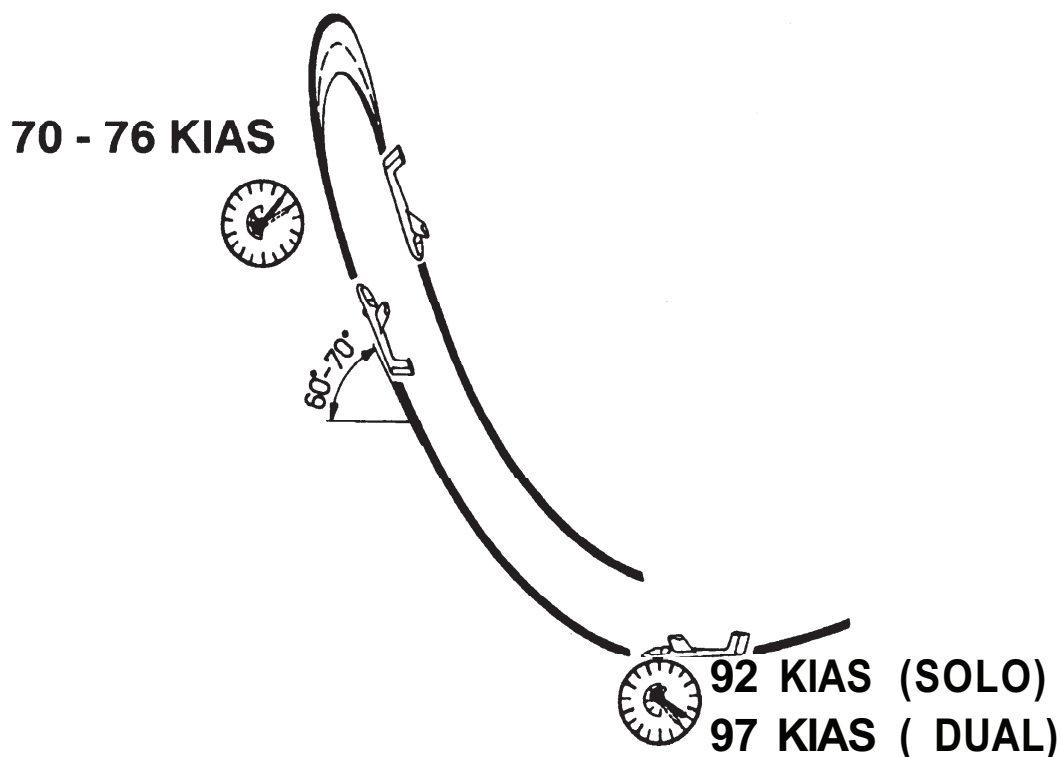


FIG. 4 - 4

( Cont. )

### 3.Lazy eight

Move the control stick slowly forward to attain the entry speed of 97 KIAS (solo or dual). Perform the steep turn to the selected side, smoothly pulling the control stick with simultaneous coordinated use of ailerons and rudder.

At a speed of 54 KIAS transition the sailplane to a descent and after reaching a speed of 97 KIAS perform the steep turn to the opposite side, smoothly pulling the control stick with simultaneous coordinated use of ailerons and rudder.

The flight path intersects at the lowest point of the manoeuvre.

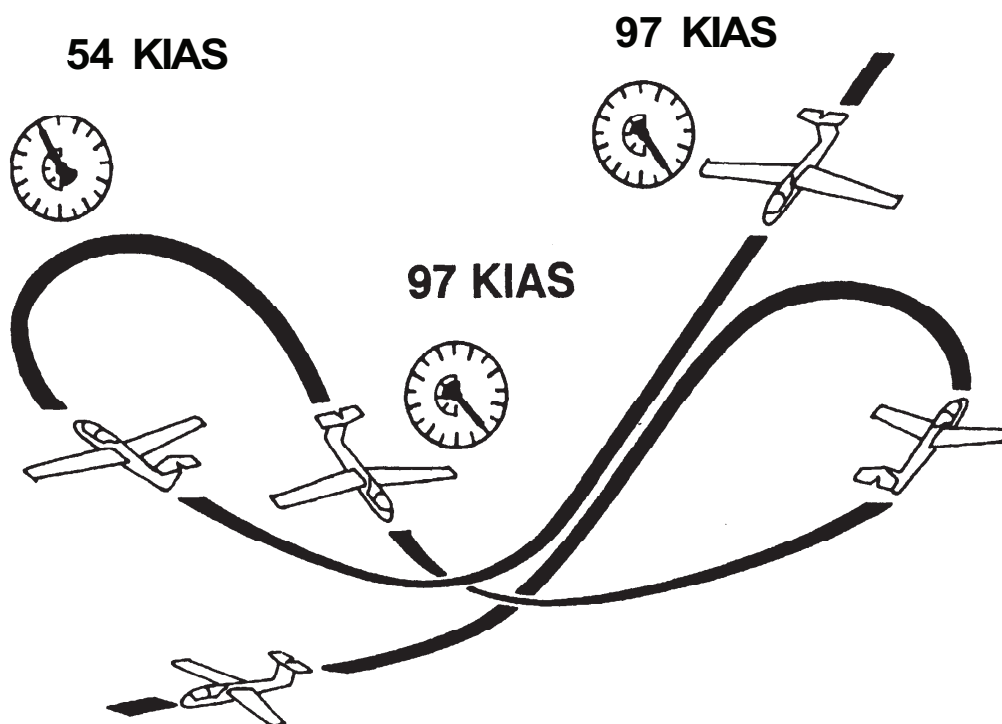


FIG. 4 - 5

#### 4. Spin

The sailplane performs the spin without any tendency to enter a flat spin at all operating centre of gravity positions. The sailplane has the tendency to recover from the spin by itself, when at the maximum flight weight and the forward centre of gravity. Entering the spin is entirely conventional. Pull the control stick slowly back to approach the stall, use the full deflection of the rudder at the stall speed of approximately 32 KIAS (Fig. 4-3) and maintain full aft deflection of the control stick. Initiate recovery from the spin by applying full opposite deflection of the rudder. When the sailplane stops the rotation, neutralize the rudder and simultaneously ease the control stick forward. Recover the sailplane from the dive in the usual way. The attitude during the spin is 60' to 70' nose down and the loss of height in one turn is approximately 260 ft when flying solo and 390 ft when flying dual. The time of one revolution of the spin is approximately 3.5 secs.

Caution: 1. **Before spinning accomplish the procedures given in the Flight Manual, Section 4, paragraph 3.**

2. **IAS error.**

The airspeed indications become erroneous at large yaw angles, because the static vents on the sides of the fuselage are by-passed asymmetrically.

3. **When the spin is performed as an aerobatic manoeuvre, it is possible to maintain the spin by applying aileron in the direction of the rotation.**

**Stop the spin rotation by applying full opposite rudder and neutralize the ailerons. When the sailplane stops the rotation, neutralize the rudder and ease the control stick forward. Pull-out from the dive using standard procedure.**

Note: Airspeed indications well above the stall speed during a spin may indicate a spiral dive rather than a spin.

( Cont. )





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# L 23 SUPER - BLANIK

## SAILPLANE FLIGHT MANUAL

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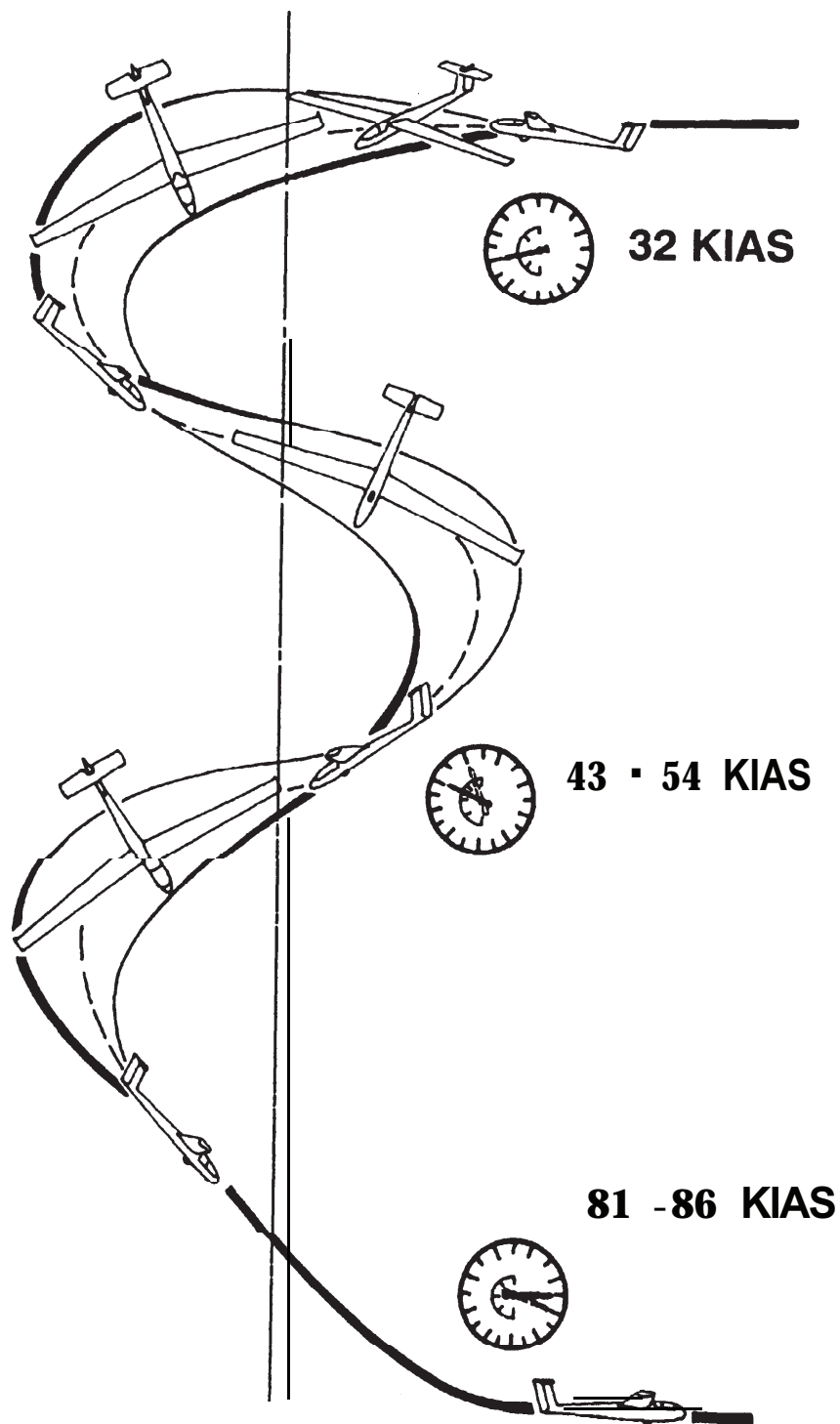


FIG. 4 - 6

## 5. Chandelle (climbing)

Move the control stick slowly forward to attain the entry speed of 97 to 103 KIAS (solo or dual).

Transition the sailplane to a steep climb at an angle of approximately  $45^{\circ}$  above the horizon (do not increase the angle).

At a speed of 76 KIAS, apply the rudder to the selected side of the turn and by coordinated positive use of the ailerons make a transition to gliding flight in the opposite direction at a minimum speed of 43 KIAS.

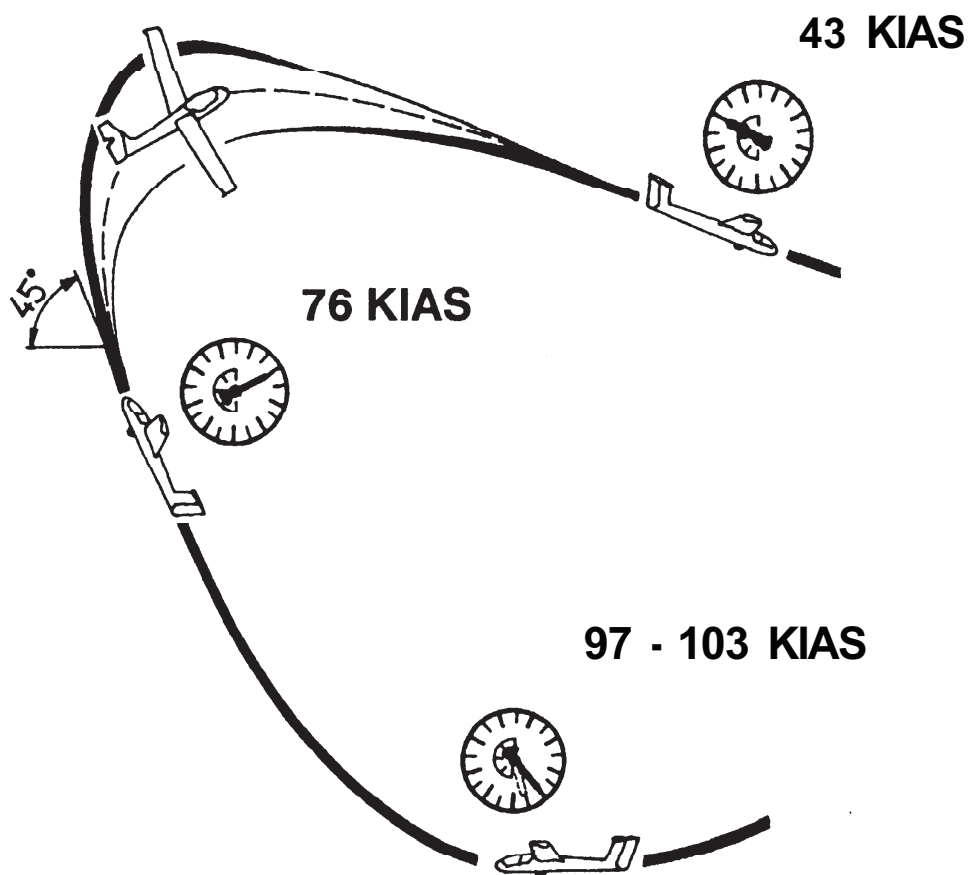


FIG. 4 - 7

( Cont. )

## 6. Steep turn

To perform this manoeuvre keep the entry speed of 92 KIAS when flying solo or 97 KIAS when flying dual. Enter the climb simultaneously with a bank of approx. 45°. After turning 150° start a transition to a glide angle such that the manoeuvre will be finished in the opposite direction with the speed not decreasing below 43 KIAS.

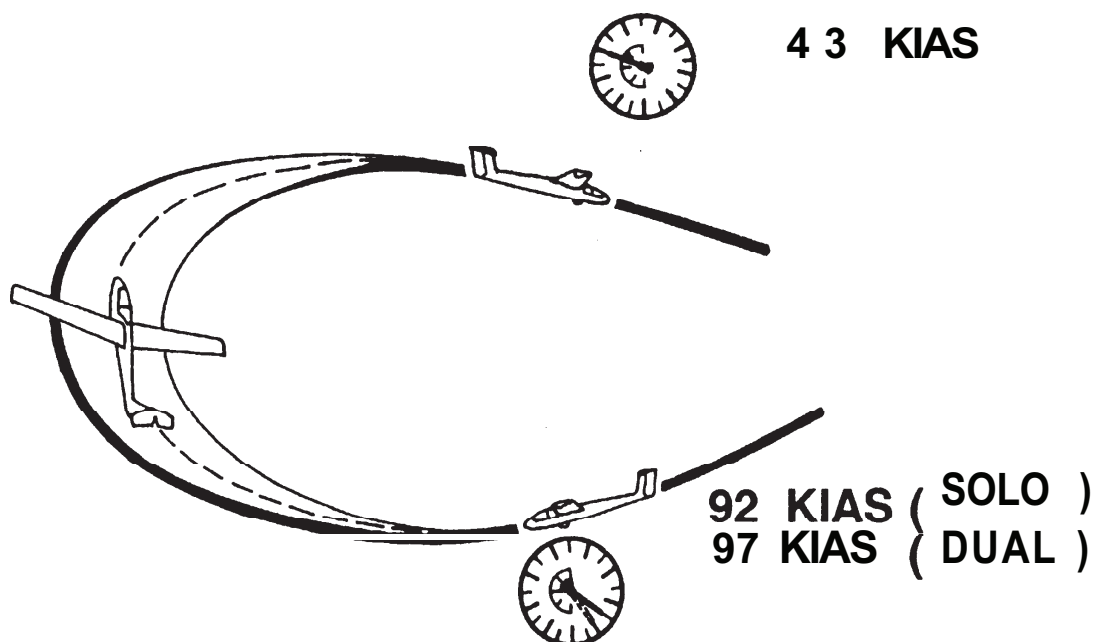


FIG. 4 - 8